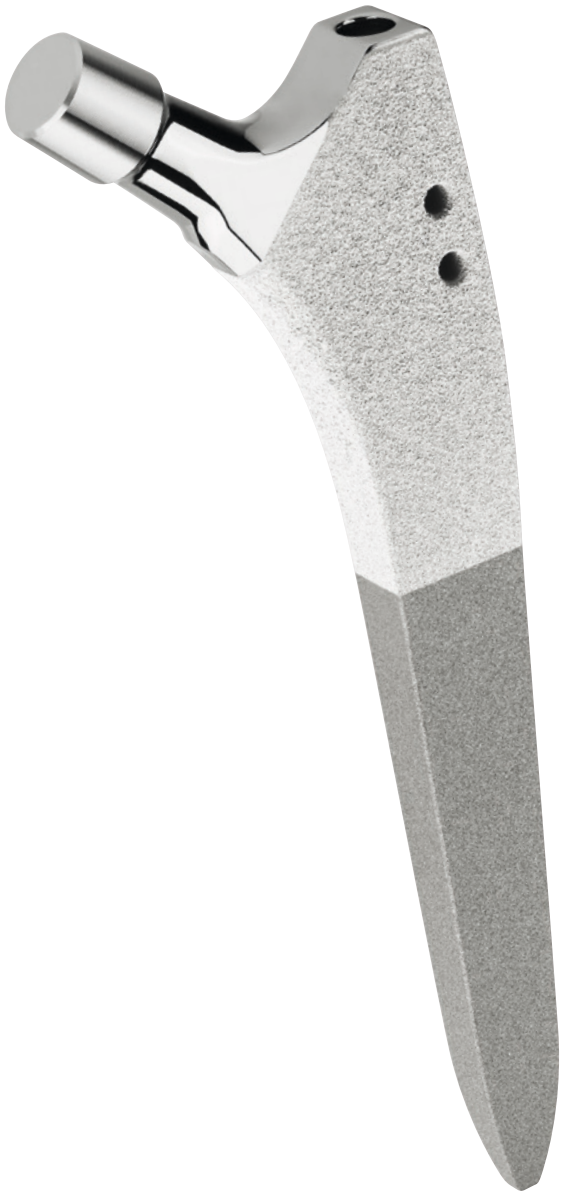
Surgical Technique

smith&nephew

SL-PLUS® MIA

Cementless Femoral Hip Stem



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Note Bena

The surgical technique described in this brochure is the procedure suggested by the authors for uncomplicated surgery. The surgeon must, however, decide which procedure is the most suitable and effective for each individual patient. e-IFU homepage:ifu.smith-nephew.com

The following technique is for informational and educational purposes only. It is not intended to serve as medical advice. It is the responsibility of treating physicians to determine and utilize the appropriate products and techniques according to their own clinical judgment for each of their patients. For more information on the product, including its indications for use, contraindications, and product safety information, please refer to the product's label and the Instructions for Use.

Introduction

The SL-PLUS◇ MIA INTEGRATION-PLUS◇ stem, also referred to as SL-PLUS MIA, has been in clinical use since 2007. The innovative design of the SL-PLUS MIA is based on the SL-PLUS by elimination of the trochanteric wing and retaining the successful biological meta-diaphyseal anchoring concept.[1-7] The dual-tapered straight stem with its rectangular cross section helps to establish excellent primary and rotational stability in the cortical bone.[3,6]

The SL-PLUS MIA stem is designed to implant using minimally invasive surgical techniques as it preserves and protects the greater trochanter bone.* This may minimise the risk of fracture as a result of better trochanteric bone stability.[4-5,8-10]

The cementless SL-PLUS MIA range includes 14 standard stems with a CCD angle of 131° and 12 lateral stems with a CCD angle of 123°. All stems are coated with the INTEGRATION-PLUS open-pored titanium plasma/HA coating in the proximal area leading to accelerated and increased bone on-/in-growth.**[6-7,11-12]

*Compared to SL-Plus Primary

**Compared to HA only coated stems and non-HA coated stems

Precautions regarding surgical technique

Reliable fit of femoral ball heads on stem tapers
The taper connection can only be reliably and firmly seated if the surface of the ball head cone and the surface and structure of the hip stem taper are completely intact. The disposable plastic cap protecting the stem taper from damage shall not be removed until the trial ball is attached. To ensure that the ball head performs as required, it is essential to take great care when attaching it to the stem taper: Clean and dry the neck taper with a clean, sterile cloth. Place the prosthetic femoral head on the neck taper and firmly impact with the femoral ball head impactor and a mallet several times. Never reuse a femoral ball head that has been impacted onto a stem cone and then removed.

Restrictions on head/insert combinations
- BIOLOX®forte/delta ceramic inserts must only be combined with BIOLOX®forte/delta ceramic ball heads.

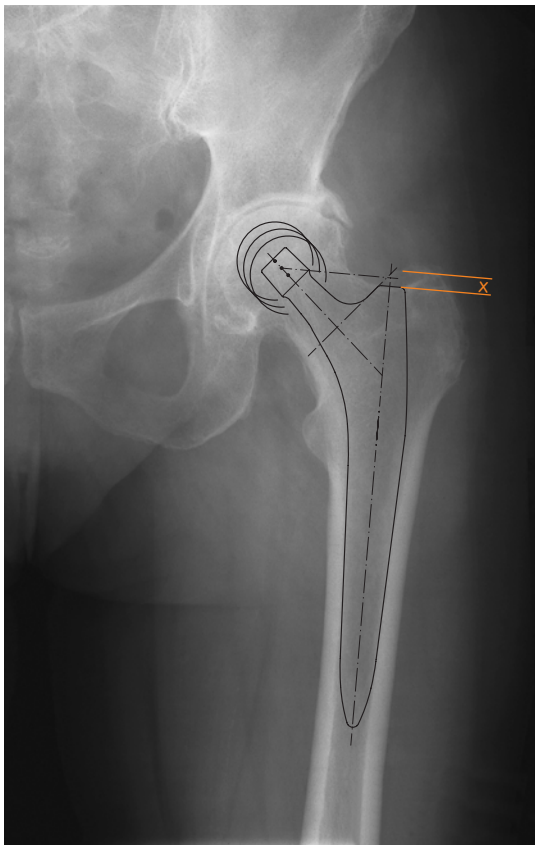
Compatible Devices/Devices used with:
The surgeon must always ensure that the individual components of the total/partial hip arthroplasty are compatible. SL-PLUS◊ MIA must not be combined with other manufacturer implants, unless the implant combination is described within this document, the SL-PLUS MIA IFU, or is listed in the compatibility matrix (lit. no. 04758) available on ifu.smithnephew.com. The compatibility matrix provides all femoral head combination options for SL- PLUS MIA relating sizes and material. Ball heads should only be combined with hip stems of identical taper dimensions. SL-PLUS MIA can be combined with all acetabular cup systems manufactured by Smith & Nephew Orthopaedics AG and Smith & Nephew Inc. taken into account any restrictions given by the relevant femoral head.

Further, SL-PLUS MIA should always be implanted using Smith & Nephew Orthopaedics AG surgical instruments, unless these are commonly used in the operating room and/or described in this surgical technique. All liability is excluded for the unauthorised use of third-party products.

Note:
- SL-PLUS MIA must not be combined with femoral ball heads made of stainless steel
- Size 01 SL-PLUS MIA standard stem must not be used in combination with femoral ball heads with neck length +16

Femoral ball head revisions
For the revision of a femoral ball head, apply the following:
- The corresponding insert has to be revised as well.
- Replacement only by a metal ball head or a special ceramic revision femoral ball head featuring a metallic taper adaptor (BIOLOX® OPTION). Do not assemble a standard ceramic head on a used taper; the ceramic head may fracture from irregularities on the femoral component taper.
- In the case of a revision involving a fractured ceramic component, femoral ball head and insert have to be revised. Remove all loose identifiable fragments and thoroughly irrigate and lavage the operative site. A special ceramic revision femoral ball head coupled with a metallic taper adaptor should be used if the femoral taper is intact. Metal or OXINIUM◊ femoral ball heads with a polyethylene insert shall not be used for revising fractured ceramic components. In case the taper is damaged or no appropriate ceramic revision femoral ball head is available, the femoral stem must be revised to provide a suitable femoral taper to attach a new ceramic ball head.

Preoperative planning



Preoperative planning is essential to determine the correct orientation and size of implant. AP and axial X-rays are required for this purpose. The offset and neck length to be achieved with the prosthesis are determined with the aid of X-ray templates.

Preoperative planning requires:

- X-rays
- Templates for the acetabular component and the stem or
- Digital templates for the acetabular component and the stem

The following acetate X-ray templates are available for SL-PLUS® MIA:

Item No.	Description
2202	SL-PLUS MIA X-ray templates Standard / Lateral 1.15

Today, digital templating is the new standard in many institutions. Smith & Nephew is supporting a number of third party digital pre-operative planning tools.

To determine the entry point in the medullary canal, the surgeon is advised to draw the femoral axis on the AP radiograph and extend this proximally. This line indicates how far laterally the box chisel needs to be placed to open up the medullary canal, thus facilitating identification of the lateral entry point at operation.

It is also helpful to define the position of the stem within the canal. The distance x from the shoulder of the stem to the greater and lesser trochanter is measured and can serve as an additional leg length check.

Note

X-ray templating is not as reliable for determining implant sizing in revision cases as they are in planning for primary implantations and can therefore only provide an approximate estimate of the actual stem size required.

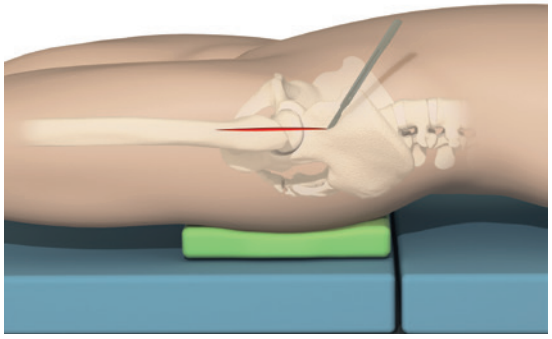
Warnings and precautions

SL-PLUS MIA implants must not be implanted with cement.

Please contact your local Smith & Nephew representative or distributor to order X-ray templates or in case of any other product related question.

Surgical technique

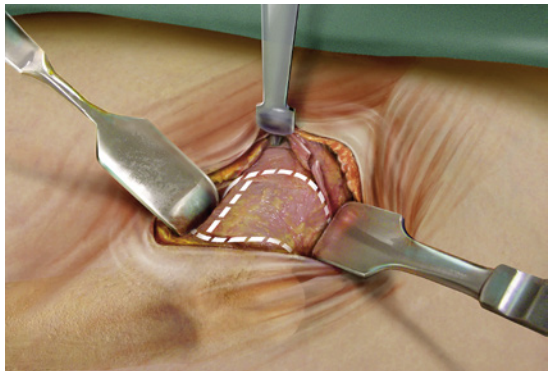
Position of the patient and approach



For the purpose of this surgical technique, the anterolateral, minimally invasive approach is chosen with the patient in the supine position.

Whether an anterolateral, lateral, posterolateral or posterior approach is used is at the surgeon's discretion. The skin incision and muscle detachment depend on the selected approach. All implants and instruments suit conventional or minimally invasive surgical techniques.

Capsular incision and dissection



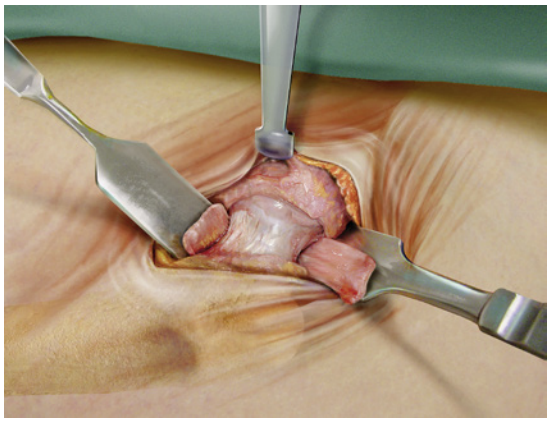
Perform a blunt dissection between the tensor fasciae latae and the gluteus medius/minimus from the lateral side to expose the femoral neck.

One sharp and one blunt Hohmann retractor are placed laterally and medially respectively. The curved rectus tendon is exposed, undermined, divided and released from its attachment to the capsule.

The third retractor is placed between the ventral joint capsule and the overlying muscles (curved rectus tendon and the ileopsoas muscle).

The femoral neck is then exposed via an H-shaped incision of the joint capsule:

- longitudinal incision, as far medially as possible, from the acetabular rim to the intertrochanteric line
- proximal transverse incision of the acetabular labrum from approx. the nine o'clock to the three o'clock position
- distal transverse incision extending along the intertrochanteric line

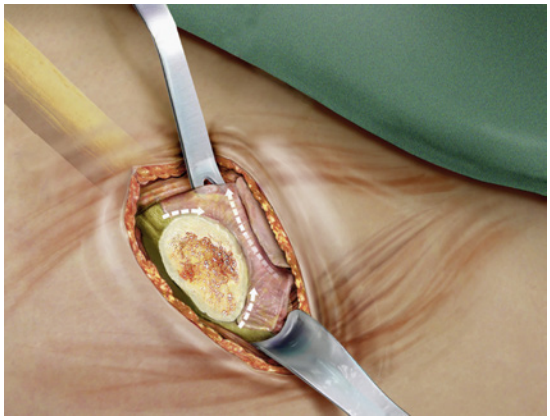


After the wing-like opening of the joint capsule, the dissection of the capsule can be continued by extending the distal incision along the intertrochanteric line in the direction of the lesser trochanter and the proximal incision medially and/or laterally.

Two blunt Hohmann retractors are positioned inside the joint. Problematic osteophytes on the acetabular rim are removed.

The technique selected by the surgeon for the neck resection (single or double osteotomy) depends on the patient (coxa vara/valga).

Capsular release



In order to facilitate alignment of the stem, the surgeon switches the leg to the “Figure of 4” position and performs an additional release of the posterior capsule.

Now a retractor is placed between the capsule and the gluteus muscle holding the leg in a 10-20° abducted position. This facilitates the placement of the retractor and gives access to the lateral and cranial part of the capsule. In that way this part of the capsule should be released or resected.

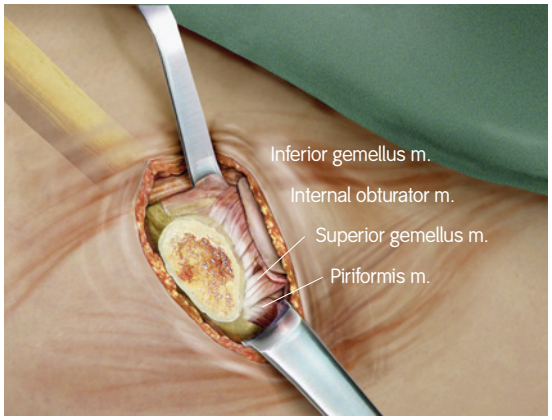
The leg is hyperextended, adducted approximately 30–40° and externally rotated by 90°. The leg being operated on is placed under the other leg in a “Figure of 4” position. Alternatively, the other leg is lowered and the leg being operated on is placed on top.

The proximal femur is mobilized with two retractors, a lateral trochanter retractor and a second retractor on the medial side of the femoral neck.

Capsular releases must be performed in the direction of both the lesser trochanter and the trochanteric fossa to the tip of the trochanter. Optionally, it can also be performed on the caudal rim of the acetabulum.

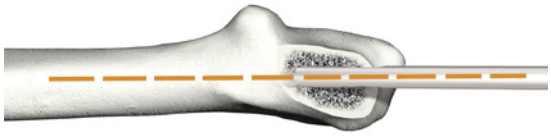
The cup is then implanted according to the corresponding surgical technique.

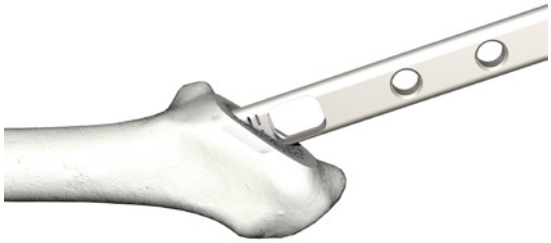
Stem Preparation



In very muscular or obese patients, patients with a valgus femoral neck, or in cases where the proximal femur sits deep to the skin surface, further release of the posterior capsule or release of the piriformis tendon may be necessary to allow adequate mobilization of the femur prior to preparation of the implantation site.

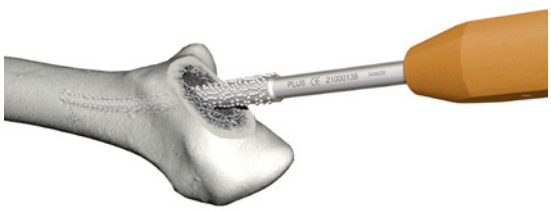
Access to the medullary canal





The box chisel (75006419/41000029) is placed close to the posterior cortex at the resection level. The box chisel is introduced in alignment with the femoral axis and a small square block of bone is removed. If, after the neck resection, the box chisel is not used to expose the canal, splitting of the trochanter may occur during rasp insertion.

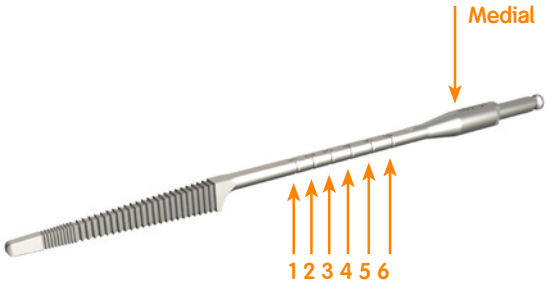
Do not impact the box chisel too deeply.



The MIA curved rasp facilitates opening of the diaphyseal medullary cavity. Removal of the intramedullary fat by suction to avoid fat embolism.

Further opening of the diaphyseal medullary cavity and probing of the diaphysis with a corresponding awl are recommended.

Use of the MIA guide rasp



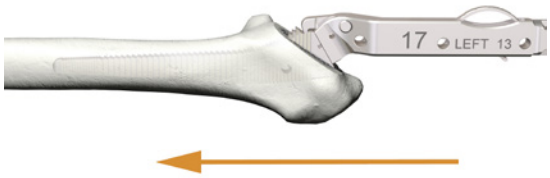
Markings on implant shoulder

The aim of the MIA guide rasps is to ensure easier alignment of the rasping bed, thereby preventing a varus implant seating. The MIA guide rasp should be introduced with the desired degree of anteversion, matching the planned rotation of the stem.

The rasp depth can be checked by means of the line markings on the stem. These markings correspond to the shoulder level of the respective SL-PLUS® MIA implant size. During the rasping operation, care should be taken to restrict the depth of insertion of the MIA guide rasp to around one or two sizes smaller than the planned implant size. As soon as cortical contact is achieved the guide rasp should not be driven any further. An optional MIA guide rasp, size 01-3, is available for small stem sizes of 01 or 0.

When mounting the rasp on the slap hammer or rasping machine, ensure that the side marked “MEDIAL” is correctly oriented. If the medial and lateral sides are inadvertently reversed, the rasp handle may strike the medial aspect of the greater trochanter, forcing the rasp out of its planned neutral alignment.

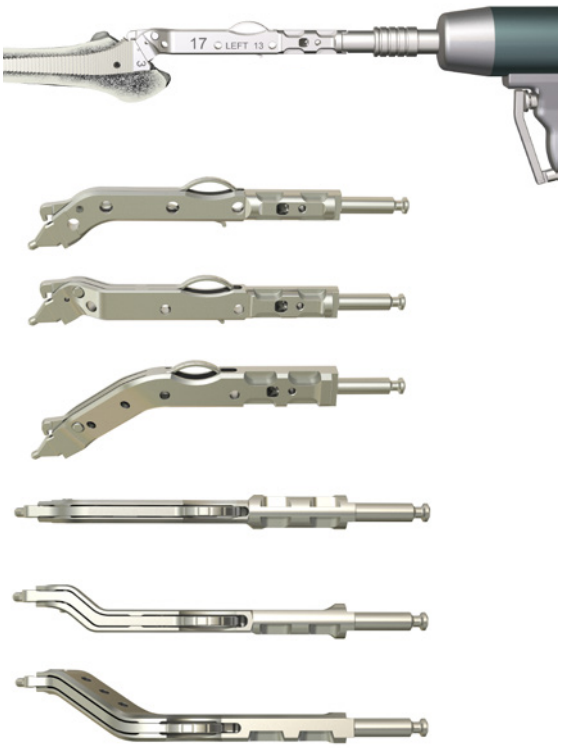
Broaching of the femur



The rasp cuts longitudinal grooves in the femoral cortex. The goal is to achieve extensive surface area contact to provide cortical support for the implant. By gradually increasing the depth of rasping within the medullary cavity, the area of cortical contact increases, along with the resistance to the advance of the rasp. As soon as the rasp is fully engaged within cortical bone, the pitch of the hammer blows rises. The critical resource for checking the correct size is the preoperative planning with the X-ray.

Preparation of the bone bed up to implants of size 4 starts with a size 01 rasp. For implants of size 5 and above, a size 1 rasp can be used initially.

Important
Since the first rasp determines the position of all the following rasps, its orientation is critical for exact positioning of the stem.

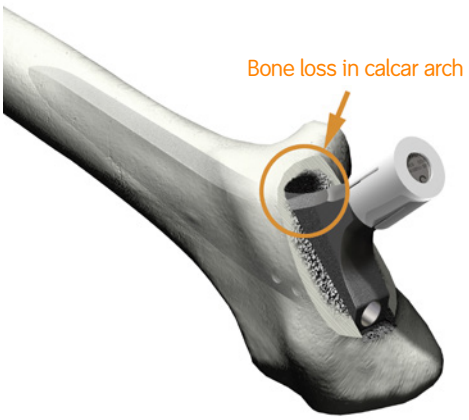


For correct alignment, the rasp is inserted along the anatomical axis of the stem. If the operator deviates from this axis there is a risk of subsequent varus positioning of the stem in the femur.

The mountable MIA detachable rasps are used to create an implantation site of the correct size and alignment for the femoral implant, as described below.

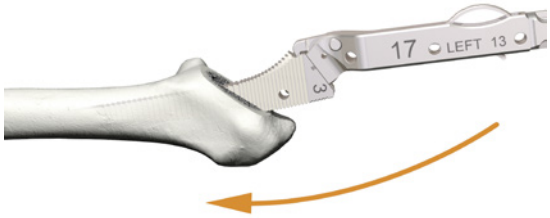
Adapters with differing offsets are available to accommodate the selected surgical approach and/or patient size. Please refer to the instrument sets on page 21 and 22.

All modular adapters can be connected to the slap hammer or the MIA Rasping Machine (IMT Woodpecker) or the modular knock plate (75000642/21000378).

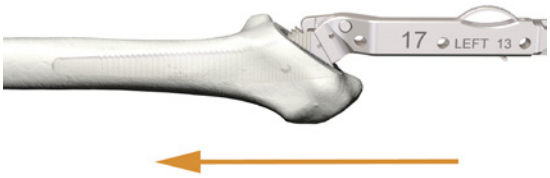


At the start of the rasping process, the depth of the rasp must be checked to ensure that it is not inserted too deeply. It is extremely important to understand that the osteotomy is unrelated to the final position of the implant. Because of the initially reduced rasp resistance, there is a tendency for surgeons to insert the smaller rasps too deeply into the femur. This will result in excessive enlargement of the implantation site and lead to gaps on the medial aspect between the bone and the final implant.

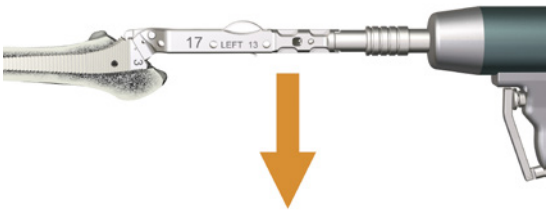
The subsequent rasp is introduced into the cavity until resistance is felt. The rasp is then driven laterally and distally into the femur using the (slap) hammer or the rasping machine. This process is repeated with sequential rasp sizes until an adequate depth is achieved for the desired implant size. If the double offset adapters are used, care should be taken to ensure that these instruments are used on the corresponding side of the patient.



The rasp is introduced into the cavity along a slightly arc-shaped path.



Attention should be paid to the anteversion and varus/valgus alignment of the slap hammer or the rasping machine with respect to the femoral axis. Insertion of the rasps in a varus inclination involves the risk of perforation and/or fracture of the lateral cortex of the femur.

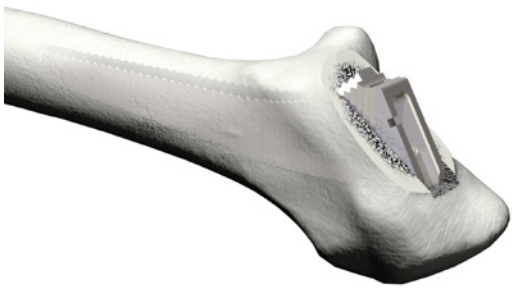


If rasping is carried out using the slap hammer or the MIA Rasping Machine, the weight of these instruments helps ensure the precise longitudinal alignment of the rasp within the femur. It is important that lateral pressure is continuously applied to the rasping machine to ensure that the rasp moves in line with the axis of the canal and does not seat in a varus position.

The shoulder of the rasp corresponds to the shoulder height of the implant and should correspond to the preoperatively determined distance to the greater trochanter (marked x). If the greater trochanter is not present anymore, the lesser trochanter can be taken instead.

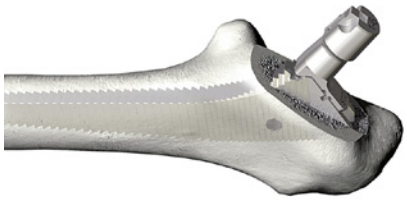
Only in rare cases does the planned prosthesis size not correspond to the size rasped at operation. If there is a discrepancy of two or more sizes, the rasp may not have reached the necessary depth because of incorrect angulation or the presence of an obstacle in the canal. In these cases the prosthesis would be too small and stable cortical anchorage would not be ensured in the long term. If doubt exists, intraoperative radiography or fluoroscopy is necessary so that the obstruction can be assessed.

If the preplanned implant size goes too deep into the femoral canal, a fracture (fissure) should be excluded by intraoperative radiography or fluoroscopy.



Once the optimum size and stability of the rasp and its height position are achieved, the offset adapter is removed from the mounted detachable rasp.

Trial Reposition

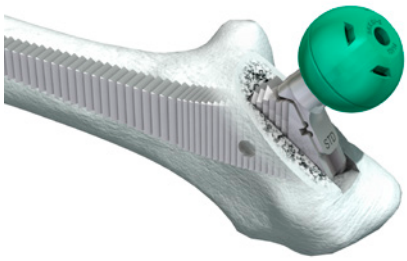


The neck module is attached to the detachable rasp by hand.

Standard neck modules are available for detachable rasp sizes 01–0, 1–6 and 7–12. Matching “lateral” neck modules are available for detachable rasp sizes 1–6 and 7–12.

It is important to ensure that the neck module fits flush with the detachable rasp and that it clicks into position.

Trial Reposition



The selected trial ball head can either be fitted to the neck module in advance or in situ. Ideally fitting of a M/+4 or L/+8 trial ball head is recommended to leave room for up-/down-sizing on the final stem.

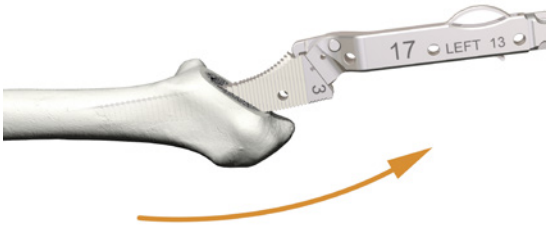
The joint is reduced and the leg length, soft tissue tension and range of motion are checked. During the initial operations, it is recommended that the surgeon obtain AP and lateral intraoperative radiographs (image intensifier) to verify the position and size of the rasp in both planes.

If necessary the trial ball head and/or the neck module (standard or lateral) should be replaced until a satisfactory result is achieved.

If luxation is still possible even though the lateralized modular neck is used and the rasp is securely seated, check if the next sized stem should be used. This then generally protrudes further proximally out of the femoral bone compared to the smaller size and can therefore lead to leg lengthening. The patient should be made aware of this risk before the surgery.

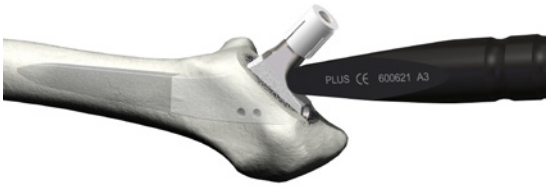
The neck module can either be removed manually from the detachable rasp or with a Kocher retractor.

The rasp adapter is connected to the detachable rasp. The connected rasping machine or the slap hammer is used to remove the detachable rasp.



Removal of the rasp, as with its introduction, must be performed along a curved arc to minimize disturbance of the bone bed and to avoid fractures in the vicinity of the trochanter.

Implantation of the stem

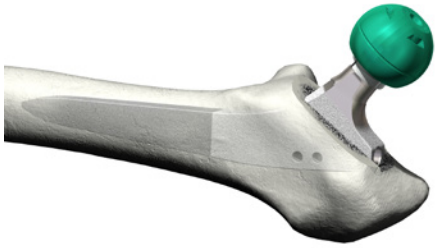


The stem of the correct size is introduced manually as deep as possible into the canal. The SL-PLUS® MIA stem is then seated with the MIA stem impactor (75007255/600621), using appropriately measured strokes to minimize the risk of femoral fractures.

The Ti/HA coating leads to a total oversize of 0.7 mm and, particularly if hard bone is present, can prevent the implant from being inserted as deeply as the rasp. In this case, it is advisable to recheck the leg length, soft tissue tension and range of motion with the trial ball head. This oversize is not usually relevant for clinical purposes and can be offset with a shorter ball head. Otherwise, the implant bed must be enlarged accordingly with the last rasp.

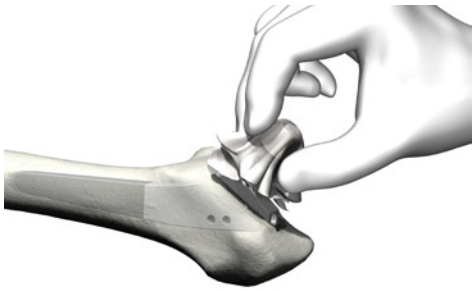
The protective cap remains mounted on the cone during impaction.

Please note
It is not sufficient to press the stem in solely by hand.

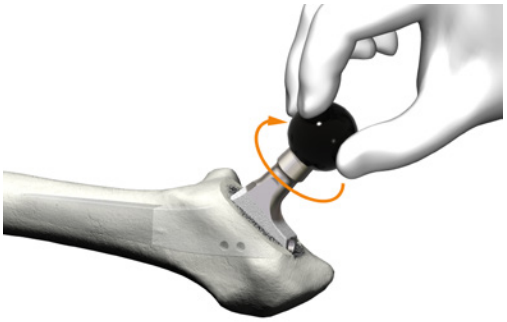


It is not permitted to impact the stem deeper than the prepared bony bed or to correct the position once the stem is in the cone bed as this would inevitably split the femoral stem. It is recommended to recheck the leg length, soft tissue tension and range of motion with the trial ball head.

Ball head introduction



Remove the plastic taper protection. Before positioning the ball head, carefully wash the stem cone with water and then dry.



The ball head is then fitted by screwing it lightly into place.

The ball head is firmly impacted using the ball head impactor (75002160/110242). The joint is then reduced, manipulated and retested to ensure proper functioning.

Note

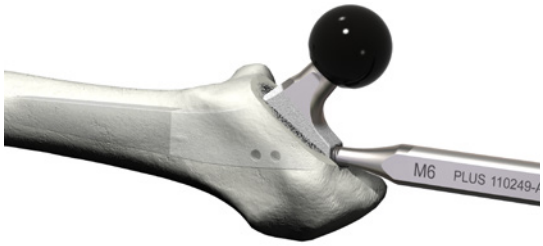
Please carefully read the chapter “Reliable fit of femoral ball heads on stem tapers” on page 2. Ceramic heads must never be impacted using a metal instrument.

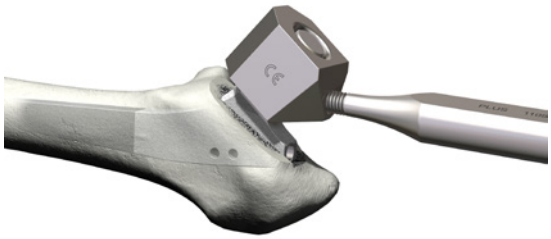
Each femoral stem has a standard 12/14 cone for coupling with OXINIUM®, ceramic or CoCr ball heads supplied by Smith & Nephew Orthopaedics AG or Smith & Nephew Inc.

Wound closure

Insert Redon drains and close the wound. Position the leg in slight abduction.

Explantation of the stem





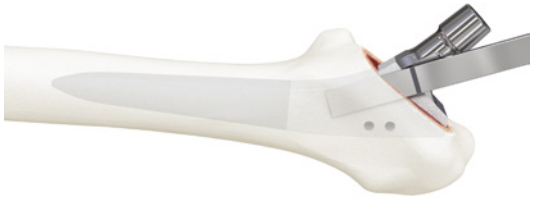
The SL-PLUS° MIA stem can be extracted using the M6 extraction screw (75002165/110249).

In case of difficulty, an extractor block secured with the M8 extraction screw is also available.

Both extraction screws, M6 and M8, can be used in connection with either the slap hammer or the rasping machine.

Please note
Ensure that the extraction screw is inserted axially.

The removal of a well osseointegrated stem should be done by the following four steps:



1. Break the bone bridges in the proximal (Ti-/HA-coated) part of the stem by using a thin flat chisel.
2. Make a short cut in the cortical bone with a thin saw blade at the distal end of the stem. Both ends of this cut should be drilled with a Ø4.0mm drill to avoid fissure following this cut. This cut should be placed in the ventral - lateral part of the femur corticalis.
3. Spread the bone edges of this cut carefully from the implant using a chisel with gentle wedge action. Doing so, you will break the bone bridges between the distal end of the implant and the surrounding bone.
4. Try to remove the implant stem with the appropriate extraction tools as described above.

Note

For additional stem removal tools, consider Smith & Nephew's RENOVATION° Implant Removal System, lit no 7138-0701.

Postoperative treatment

The postoperative treatment depends on the patient's age and general state of health. The operated leg may be immediately weight bearing. For 48 hours a splint (foam) in slight abduction is recommended.
The use of crutches can be helpful during the first days.

The use of antibiotics and thrombosis prophylaxis as well as suture removal are at the surgeon's discretion.

Serious incidents related to any Smith & Nephew medical device should be reported to Smith & Nephew (complaints@smith-nephew.com) and to the competent authority of the country in which the user and/or patient is established.

Sterilization

Implants
All the implants described in this Surgical Technique are sterile when they are delivered by the manufacturer. Resterilization is not allowed.

Instruments
Surgical instruments and trials are not sterile when they are delivered. They are to be cleaned, inspected and sterilized before use as described in the guide "Processing (cleaning, disinfection and sterilization) of instruments from Smith & Nephew Orthopaedics AG" (Lit. No. 03389). Sterilization must also be conducted in accordance with the legal regulations and guidelines applicable in the country of use.

A separate guide is available for the MIA Rasping Machine (Woodpecker, 75004683/800-09-001) from its manufacturer IMT: please, refer to "Operation Manual Woodpecker" on https://www.imt-medical.com/handling-and-maintenance/.

Implants

SL-PLUS® MIA INTEGRATION-PLUS® Cementless Stem
Material: Ti-6Al-7Nb ISO 5832-11, Cone 12/14
With Ti-plasma/hydroxyapatite coating proximally:

Standard Stem CCD 131°

SAP No.	Art. No.	Size
75000172	11000422	01
75000173	11000423	0
75000174	11000424	1
75000175	11000425	2
75000176	11000426	3
75000177	11000427	4
75000178	11000428	5
75000179	11000429	6
75000180	11000430	7
75000181	11000431	8
75000182	11000432	9
75000183	11000433	10
75000184*	11000434	11
75000185*	11000435	12

*Outlier size (optional)

Lateral Stem CCD 123°

SAP No.	Art. No.	Size
-	-	-
-	-	-
75000186	11000436	1
75000187	11000437	2
75000188	11000438	3
75000189	11000439	4
75000190	11000440	5
75000191	11000441	6
75000192	11000442	7
75000193	11000443	8
75000194	11000444	9
75000195	11000445	10
75000196*	11000446	11
75000197*	11000447	12

*Outlier size (optional)

Demo Implants

SAP No.	Art. No.	Size	Description
75023398	91000428	5	SL-PLUS® MIA INTEGRATION-PLUS Standard
75023399	91000440	5	SL-PLUS MIA INTEGRATION-PLUS Lateral

Dimensions

All dimensions in mm

Specifications

Size	Stem length I	Stem length II	M/L width	CCD angle Standard	CCD angle Lateral
01	128	109	26	131	
0	132	113	27	131	
1	137	117	28	131	123
2	141	121	29	131	123
3	145	124	30	131	123
4	150	128	32	131	123
5	154	132	33	131	123
6	159	136	34	131	123
7	163	140	35	131	123
8	168	144	37	131	123
9	173	148	39	131	123
10	178	152	40	131	123
11	183	157	42	131	123
12	188	162	44	131	123

Neck Height Standard

Size	XS/–3	S/+0	M/+4	L/+8	XL/+12	XXL/+16
01	17	19	21	24	27	32
0	18	19	22	25	27	33
1	18	20	23	25	28	33
2	19	21	23	26	29	34
3	20	21	24	27	29	35
4	20	22	25	27	30	35
5	21	23	26	28	31	36
6	22	24	26	29	32	37
7	23	25	27	30	32	38
8	24	25	28	31	33	39
9	24	26	29	32	34	39
10	25	27	30	33	35	40
11	26	28	31	34	36	41
12	27	29	32	35	37	42

Offset

Standard

Size	XS/–3	S/+0	M/+4	L/+8	XL/+12	XXL/+16
01	28	30	33	36	39	42
0	29	31	34	37	40	43
1	30	32	35	38	41	44
2	31	33	36	39	42	45
3	32	34	37	40	43	46
4	33	35	38	41	44	47
5	34	37	40	43	46	49
6	36	38	41	44	47	50
7	37	39	42	45	48	51
8	38	41	44	47	50	53
9	40	42	45	48	51	54
10	41	43	46	49	53	56
11	43	45	48	51	54	57
12	44	46	50	53	56	59

Lateral

Size	XS/–3	S/+0	M/+4	L/+8	XL/+12	XXL/+16
1	35	38	41	44	48	51
2	37	39	42	46	49	52
3	38	40	44	47	50	54
4	39	42	45	48	52	55
5	41	43	47	50	53	57
6	42	45	48	51	55	58
7	44	46	50	53	56	60
8	45	48	51	55	58	61
9	47	50	53	56	60	63
10	49	51	55	58	61	65
11	51	53	56	60	63	66
12	52	55	58	61	65	68

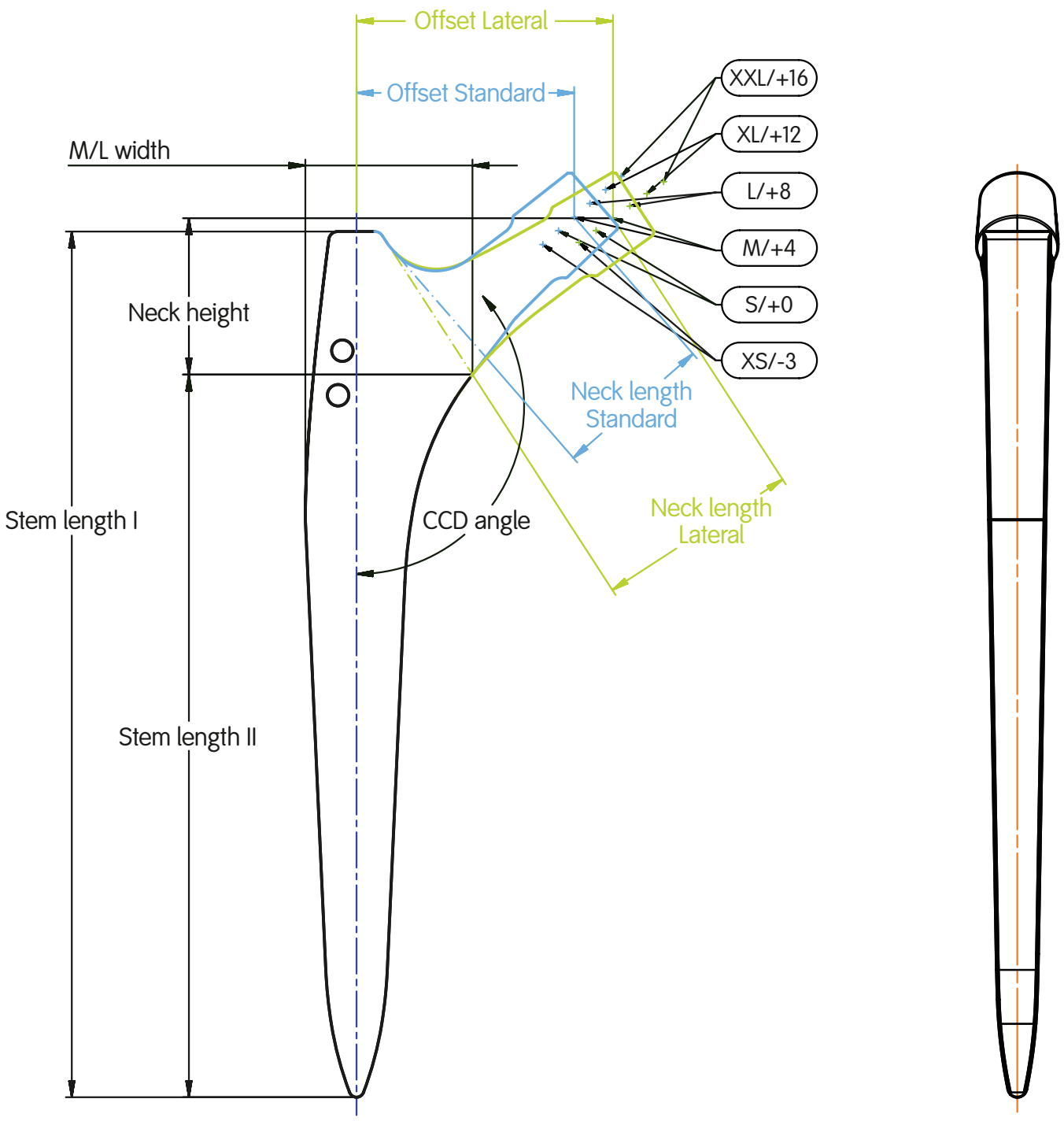
Neck length

Standard

Size	XS/–3	S/+0	M/+4	L/+8	XL/+12	XXL/+16
01	17	20	24	28	32	36
0	18	21	25	29	33	37
1	19	22	26	30	34	38
2	20	23	27	31	35	39
3	21	23	27	31	35	39
4	22	24	28	32	36	40
5	22	25	29	33	37	41
6	23	26	30	34	38	42
7	24	27	31	35	39	43
8	25	28	32	36	40	44
9	26	29	33	37	41	45
10	27	30	34	38	42	46
11	29	31	35	39	43	47
12	30	33	37	41	45	49

Lateral

Size	XS/–3	S/+0	M/+4	L/+8	XL/+12	XXL/+16
1	26	29	33	37	41	45
2	27	30	34	38	42	46
3	28	31	35	39	43	47
4	29	32	36	40	44	48
5	30	33	37	41	45	49
6	32	34	38	42	46	50
7	33	36	40	44	48	52
8	34	37	41	45	49	53
9	35	38	42	46	50	54
10	37	40	44	47	52	56
11	38	41	45	49	53	57
12	39	42	46	50	54	58


Offset Lateral
Offset Standard
XXL/+16
XL/+12
L/+8
M/+4
S/+0
XS/-3
M/L width
Neck height
Neck length
Standard
Neck length
Lateral
Stem length I
CCD angle
Stem length II

Instrument Set

SL-PLUS® MIA Basic Set

Set No. SAP/Art.
75200838/0942010

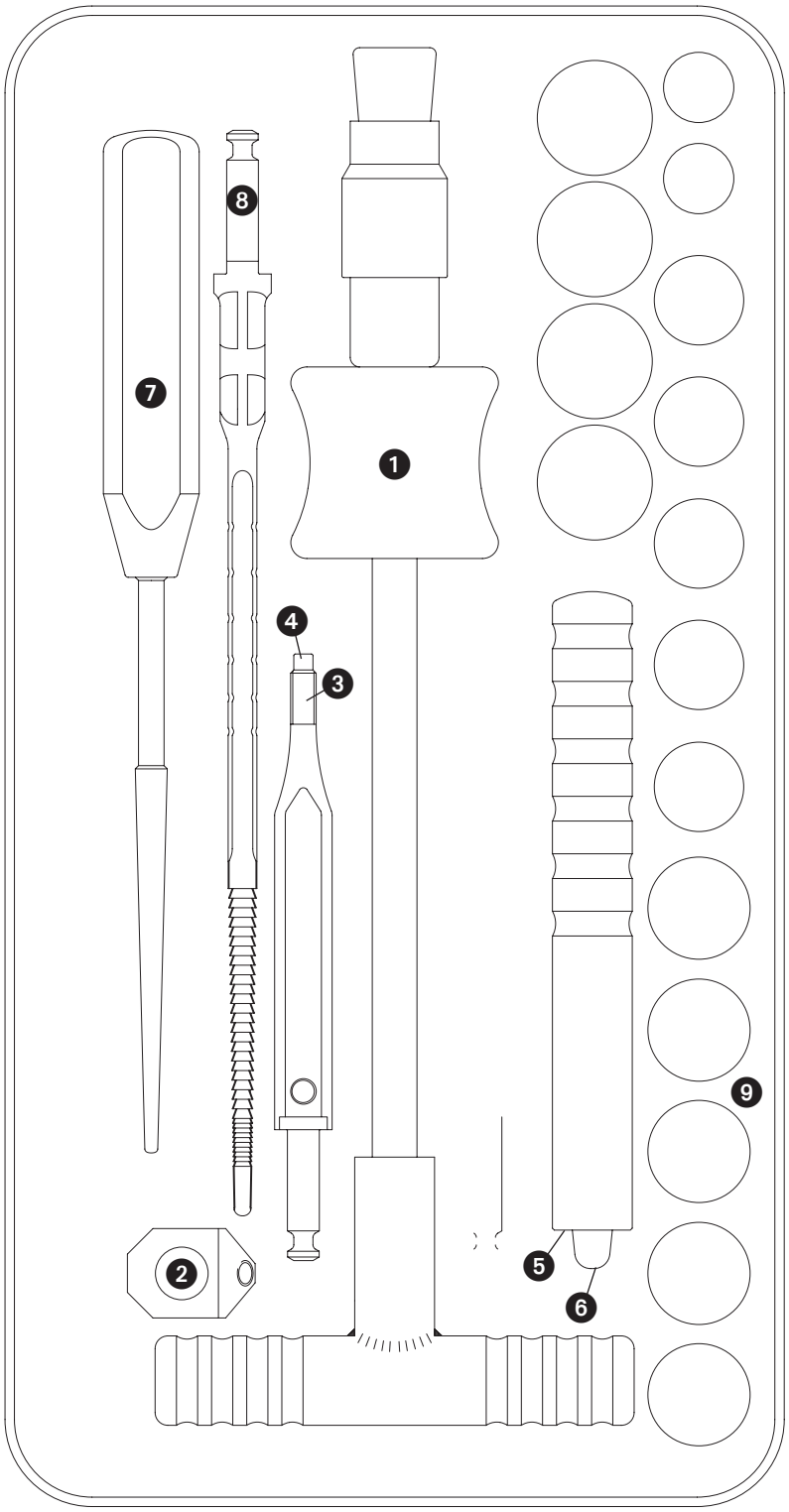
	SAP No.	Art. No.	Description	Size	
	75002198	110450	Case Basic Instruments 1/4		
	75007661	990019	Easy Tray Lid Plastic		
1	75002319	110901	Slap Hammer		
2	75002320	110902	Extractor Block		
3	75002325	110911	Extraction Screw M8		
4	75002165	110249	Extraction Screw M6		
5	75002160	110242	Ball Head Impactor		
6	75007255	600621	MIA Stem Impactor		
7	75004495	21000138	MIA Curved Rasp		
8	75006420	41000030	MIA Guide Rasp	1-6	
9	75100839*	75100839	Trial Ball Head	22	S/+0
	75100840	75100840	Trial Ball Head	22	M/+4
	75100841	75100841	Trial Ball Head	22	L/+8
	75100842*	75100842	Trial Ball Head	22	XL/+12
	75100843*	75100843	Trial Ball Head	28	XS/-3
	75100844	75100844	Trial Ball Head	28	S/+0
	75100845	75100845	Trial Ball Head	28	M/+4
	75100846	75100846	Trial Ball Head	28	L/+8
	75100847	75100847	Trial Ball Head	28	XL/+12
	75100848	75100848	Trial Ball Head	28	XXL/+16
	75100849*	75100849	Trial Ball Head	32	XS/-3
	75100850	75100850	Trial Ball Head	32	S/+0
	75100851	75100851	Trial Ball Head	32	M/+4
	75100852	75100852	Trial Ball Head	32	L/+8
	75100853	75100853	Trial Ball Head	32	XL/+12
	75100854	75100854	Trial Ball Head	32	XXL/+16
	75100855*	75100855	Trial Ball Head	36	XS/-3
	75100856	75100856	Trial Ball Head	36	S/+0
	75100857	75100857	Trial Ball Head	36	M/+4
	75100858	75100858	Trial Ball Head	36	L/+8
	75100859	75100859	Trial Ball Head	36	XL/+12

*Optional Instruments

Optional:

SAP No.	Art. No.	Description	Size
75210292	75210292	SET 40 mm Trial Ball Head	XS/-4 to L/+8
75210293	75210293	SET 44 mm Trial Ball Head	XS/ 1-6 to L/+8
75000645	21000397	MIA Curved Rasp	45°
75004615	21000265	MIA Start Rasp	
75004683	800-09-001	MIA Rasping Machine (IMT Woodpecker)*	

*Manufacturer:
IMT Integral Medizintechnik AG,
Haldenstrasse 5, 6006 Luzern,
Switzerland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SL-PLUS® MIA Trial Rasps Set

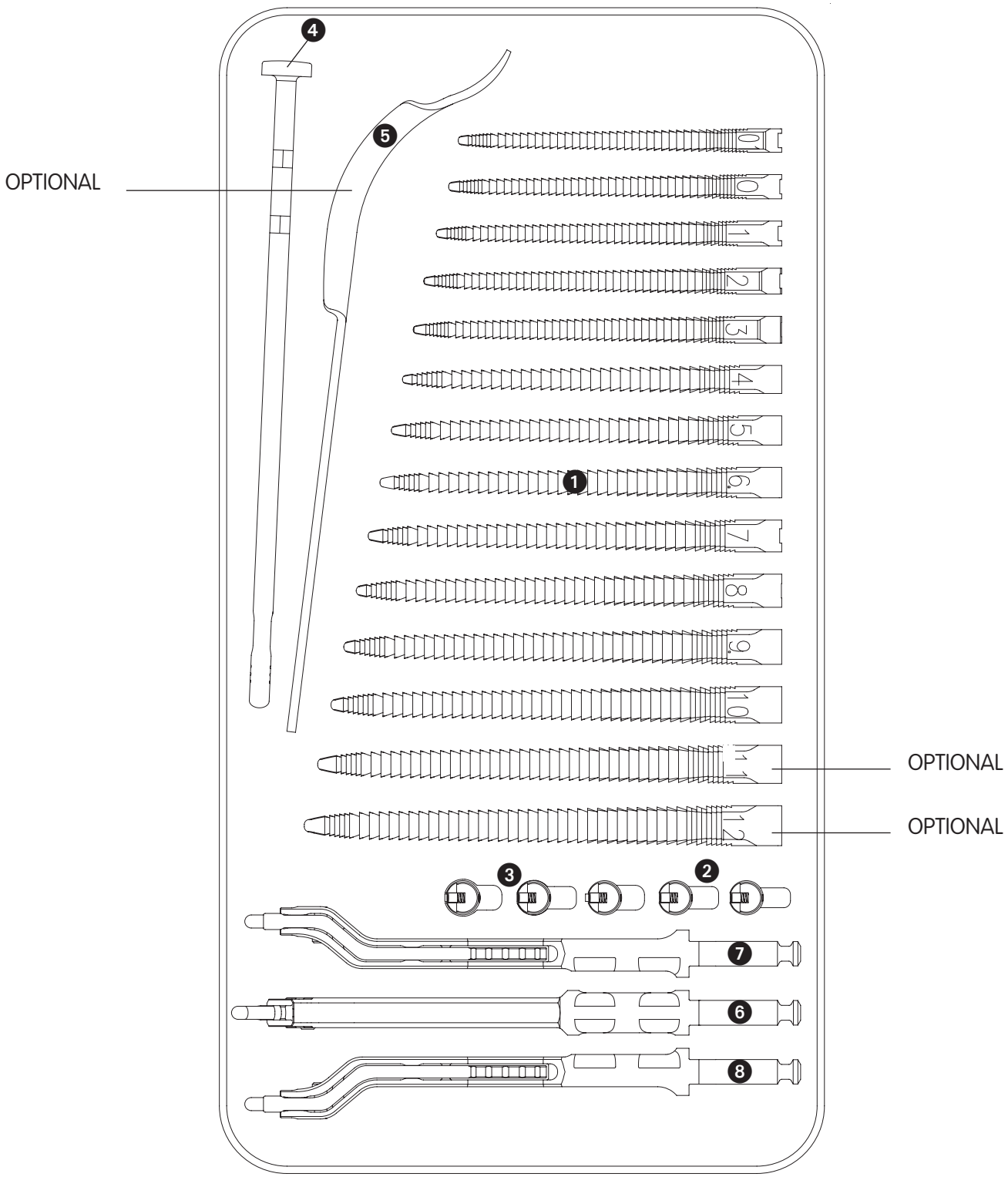
Set No. SAP
75210409

	Set No.	SAP No.	Description	Size
	75007312	600930	MIA Instrument Case	
	75007661	990019	Easy Tray Lid Plastic	
1	75004481	21000123	MIA Detachable Rasp	01
	75004482	21000124	MIA Detachable Rasp	0
	75004483	21000125	MIA Detachable Rasp	1
	75004484	21000126	MIA Detachable Rasp	2
	75004485	21000127	MIA Detachable Rasp	3
	75004486	21000128	MIA Detachable Rasp	4
	75004487	21000129	MIA Detachable Rasp	5
	75004488	21000130	MIA Detachable Rasp	6
	75004489	21000131	MIA Detachable Rasp	7
	75004490	21000132	MIA Detachable Rasp	8
	75004491	21000133	MIA Detachable Rasp	9
	75004492	21000134	MIA Detachable Rasp	10
	75004493*	21000135	MIA Detachable Rasp	11
	75004494*	21000136	MIA Detachable Rasp	12
2	75004603	21000253	MIA Modular Neck for Detachable Rasp Std	01–0
	75004604	21000254	MIA Modular Neck for Detachable Rasp Std	1-6
	75004605	21000255	MIA Modular Neck for Detachable Rasp Std	7-12
3	75004606	21000256	MIA Modular Neck Detachable Rasp lat.	1–6
	75004607	21000257	MIA Modular Neck Detachable Rasp lat.	7-12
4	75006419	41000029	MIA Box Chisel	
5	75009352*	SYS251374	Trochanter Retractor	

*Optional Instruments

Optional Rasp Adapters

	Set No.	SAP No.	Art No.	Description	Size
	75200166	75007307	600920	MIA Offset Adapter	25mm
	75200168	75007308	600921	MIA Offset Adapter	40mm
6	75200169	75007309	600922	MIA Offset Adapter	10mm
7	75200171	75007310	600923	MIA Double Offset Adapter Left	17/13mm
8		75007311	600924	MIA Double Offset Adapter Right	17/13mm
	75210202	75004612	21000262	MIA Double Offset Adapter Left	60/25mm
		75004613	21000263	MIA Double Offset Adapter Right	60/25mm
	75210372	75004614	21000264	MIA Offset Adapter	45°
	75210406	75004468	21000107	MIA Offset Adapter with Plate	25mm
		75000642	21000378	Knock Plate	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Notes

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